IN THE CLAIMS

1. (Currently Amended) A method for controlling a portable range extender capable of supplying electrical energy to a vehicle, the range extender including a dynamoelectric machine mechanically coupled to an internal combustion engine by a shaft and electrically coupled to an electric power source wherein said dynamoelectric machine is sufficiently sized so that it can drive the shaft to start the internal combustion, the method comprising the steps of:

applying electrical energization from a power source to the dynamoelectric machine for operation thereof as a motor to drive the shaft in rotation in response to an initiation input;

sensing the rotational speed of the shaft;

sensing the temperature of the engine;

in response to a sensed rotational speed that meets a first predetermined speed threshold and a sensed engine temperature that meets a predetermined temperature threshold, supplying fuel to the engine and activating ignition of the engine for operation thereof as a prime mover; and

after a period of engine prime mover operation, activating the dynamoelectric machine for operation thereof as a generator to provide an electrical current output.

2. (Original) A method as recited in claim 1, wherein:

the power source is a direct current source and the step of applying electrical energization to the dynamoelectric machine comprises inverting an output voltage of the direct current source to alternating current.

3. (Original) A method as recited in claim 2, wherein the direct current source is a battery for operation of a vehicle traction motor.

4. (Original) A method as recited in claim 3, wherein the step of activating the dynamoelectric machine as a generator comprises producing an alternating current output of the dynamoelectric machine and converting the alternating current output to a direct current output;

and further comprising the step of applying the direct current output to charge the battery.

5. (Original) A method as recited in claim 4, further comprising the step of applying the direct current output to drive the traction motor.

6. (Original) A method as recited in claim 1, wherein said period of engine prime mover operation is a predetermined time interval.

7. (Original) A method as recited in claim 1, wherein dynamoelectric machine generator operation is activated when the sensed shaft rotational speed meets a second predetermined speed threshold higher than the first predetermined threshold.

8. (Original) A method as recited in claim 1, further comprising the steps of:

terminating the supply of fuel to the engine when the engine is to be stopped;

maintaining ignition activation of the engine after the fuel supply has been terminated; and

deactivating engine ignition when fuel has been eliminated from the engine, thereby to avoid engine backfire.

9. (Original) A method as recited in claim 8, wherein the deactivating step is delayed for a preset time period.

10. (Original) A method as recited in claim 8, wherein the range extender is self contained within an enclosure that is independent of a vehicle and the steps of applying electrical energization to the dynamoelectric machine, supplying fuel to the engine, activating ignition of the engine, activating the dynamoelectric machine, terminating the supply of fuel and deactivating engine ignition, are controlled by a controller contained within the enclosure.

11. (Currently amended) A portable range extender capable of supplying electrical energy to a vehicle having a vehicle controller, the portable range extender comprising:

an internal combustion engine;

a dynamoelectric machine ~~structurally~~ mechanically coupled to the internal combustion engine by a shaft and electrically coupled to a direct current source wherein said dynamoelectric machine is sufficiently sized so that it can drive the shaft to start the internal combustion;

an autonomous range extender controller having at least one user input; and

a portable enclosure in which the internal combustion engine, dynamoelectric machine and controller are housed; wherein

in response to a user input to the controller, a sequence of range extender operations is initiated including a first phase in which electrical energization is applied from the direct current source to the dynamoelectric machine for operation thereof as a motor to drive the shaft in rotation, a second phase in which the engine is activated for operation as a prime mover; and a third phase in which the dynamoelectric machine is activated in generator operation for providing electrical current to the vehicle.

12. (Original) A portable range extender as recited in claim 11, wherein the internal combustion engine comprises an ignition circuit and a fuel supply circuit, each of these circuits coupled to a respective output of the controller.

13. (Original) A portable range extender as recited in claim 12, further comprising a speed sensor indicative of shaft speed and an engine temperature sensor, each of these sensors coupled to a respective speed input and temperature input of the controller.

14. (Original) A portable range extender as recited in claim 13, wherein the controller is configured to output signals to the ignition circuit and fuel supply circuit for prime mover activation in response to signals at the speed and temperature inputs attaining respective threshold values.

15. (Original) A portable range extender as recited in claim 12, the controller is responsive to a user termination input to apply an output signal to the fuel supply circuit to shut off the supply of fuel to the engine and, after a preset time delay, to output a signal to the ignition circuit to terminate engine ignition, thereby to avoid engine backfire.

16. (Original) A portable range extender as recited in claim 11, further comprising an inverter/converter circuit connected to electrical terminals of the dynamoelectric machine and to the controller; and wherein the inverter/converter circuit is responsive to the controller to convert the direct current energization applied in the first phase to the dynamoelectric machine to alternating current for motoring operation, and to invert alternating current output of the dynamoelectric machine in the third phase for generator operation.